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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
MCGUTHRY BANKS, TIMA M	
ART UNIT	PAPER NUMBER
1742	

DATE MAILED: 08/12/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/933,721

Applicant(s)

OJIMA ET AL.

Examiner

Tima M. McGuthry-Banks

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Objections

2. Claims 1 and 5 are objected to because of the following informalities:
 - a) In Claim 1, "produce;" should be "produce".
 - b) In Claim 1, the examiner suggests that the applicants use Markush language.
 - c) In Claim 5, "produce;" should be "produce".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter that the applicant regards as his invention.

4. Claims 2 and 5-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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5. Claim 2 lacks sufficient antecedent basis for the limitation "the recovered copper" in line 3 with respect to Claim 1.
6. Claim 5 lacks sufficient antecedent basis for the limitation "obtained FeS and Cu₂S" in line 4.
7. Claim 6 lacks sufficient antecedent basis for the limitation "the recovered copper" in line 3 with respect to Claim 5.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1-4 are rejected under 35 U.S.C. 102(a) as being anticipated by Hasegawa et al (JP 2000063963).

Hasegawa anticipates the claimed invention. Hasegawa teaches a method for smelting and oxidizing copper sulfide concentrate. Most of Fe in the copper sulfide concentrate is removed into the slag and at least a part S is removed as SO₂. The copper in the copper sulfide concentrate is obtained as white copper, nearly white copper, or the blister copper. An SiO₂ source and a CaO source are added as solvents to the copper sulfide concentrate, and the

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oxidizing and smelting is executed to produce the slag having 0.3-0.6 $\text{CaO}/(\text{SiO}_2+\text{CaO})$ wt. ratio and 0.2-0.5 $\text{Fe}/(\text{FeO}_x+\text{SiO}_2+\text{CaO})$ wt. ratio (abstract). The anticipated values are 0.6 and 0.5, respectively. Regarding Claim 2, the produced slag undergoes annealing solidification, is ground, and undergoes flotation (Claim 2 of machine translation). Regarding Claim 3, SiO_2 content is 1.7% by weight (Claim 3). Regarding Claim 4, the temperature is 1300°C or less (Claim 4); the anticipated range is 1280°C or less.

10. Claims 5-10 are rejected under 35 U.S.C. 102(a) as being anticipated by Hasegawa.

Hasegawa anticipates the claimed invention. Hasegawa teaches a method for smelting and oxidizing copper sulfide concentrate. Most of Fe in the copper sulfide concentrate is removed into the slag and at least a part S is removed as SO_2 . The copper in the copper sulfide concentrate is obtained as white copper, nearly white copper, or the blister copper. An SiO_2 source and a CaO source are added as solvents to the copper sulfide concentrate, and the oxidizing and smelting is executed to produce the slag having 0.3-0.6 $\text{CaO}/(\text{SiO}_2+\text{CaO})$ wt. ratio and 0.2-0.5 $\text{Fe}/(\text{FeO}_x+\text{SiO}_2+\text{CaO})$ wt. ratio (abstract). The anticipated values are 0.6 and 0.5, respectively. The method further includes oxidizing a matte containing FeS and Cu_2S and removing Fe and S as slag and SiO_2 (Claim 5 of machine translation). Regarding Claim 6, the produced matte undergoes annealing solidification, is ground, and undergoes flotation; (Claim 6). Regarding Claim 7, the generated slag is in a melted state and subjected to the matte oxidizing process (Claim 7). Regarding Claim 8, the generated slag is cooled and subjected to the matte oxidizing process (Claim 8). Regarding Claim 9, SiO_2 content is 1.7% by weight

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(Claim 9). Regarding Claim 10, the temperature is 1300° C or less (Claim 10); the anticipated range is 1280° C or less.

11. Claims 1, 3, and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Edwards et al (US 5,888,270).

Edwards anticipates the claimed invention. Edwards teaches converting a copper sulfide matte or a copper sulfide concentrate to blister copper. The matte or concentrate is added with a flux to a molten bath containing molten slag and molten metal. Oxidizing gas is injected to form a low sulfur blister copper, slag, and sulfur dioxide (abstract). The flux comprises CaO and SiO₂ (column 18, line 35). The formed slag has the following composition, from columns 19-22 and

Runs 15-22B:

CaO	SiO ₂	Fe	FeO _x	Ratio 1	Ratio 2
9.23	5.05	35.28	22.66	0.65	0.96
10.81	6.84	36.41	31.75	0.61	0.74
11.53	6.86	36.35	35.03	0.63	0.68
15.32	8.13	35.01	47.54	0.65	0.49
21.14	11.56	39.18	35.26	0.65	0.58
3.73	14.48	38.38	47.71	0.20	0.58
14.06	8.4	34.95	33.27	0.63	0.63
15.11	8.16	31.95	28.96	0.65	0.61

Where Ratio 1 is the ratio of CaO to (SiO₂ + CaO) and Ratio 2 is the ratio of Fe to (FeO_x + SiO₂ + CaO). The values that anticipate Claim 1 correspond to Run 19. Regarding Claim 3, the amount of SiO₂ content of the copper sulfide concentrate (column 18, line 39) with respect to the

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Fe removed into the slag ranges from 1.9-2.3%. Regarding Claim 4, the slag temperature ranges from 1200-1300° C (column 3, lines 11 and 12).

12. Claims 5, 9, and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Edwards.

Edwards anticipates the claimed invention. Edwards teaches converting a copper sulfide matte and a copper sulfide concentrate to blister copper. The matte and concentrate are added with a flux to a molten bath containing molten slag and molten metal. Oxidizing gas is injected to form a low sulfur blister copper, slag, and sulfur dioxide (abstract). The matte contains Cu_2S and FeS (column 2, line 53). The flux comprises CaO and SiO_2 (column 18, line 35). The formed slag has the following composition, from columns 19-22 and Runs 15-22B:

CaO	SiO₂	Fe	FeO_x	Ratio 1	Ratio 2
9.23	5.05	35.28	22.66	0.65	0.96
10.81	6.84	36.41	31.75	0.61	0.74
11.53	6.86	36.35	35.03	0.63	0.68
15.32	8.13	35.01	47.54	0.65	0.49
21.14	11.56	39.18	35.26	0.65	0.58
3.73	14.48	38.38	47.71	0.20	0.58
14.06	8.4	34.95	33.27	0.63	0.63
15.11	8.16	31.95	28.96	0.65	0.61

Where Ratio 1 is the ratio of CaO to $(\text{SiO}_2 + \text{CaO})$ and Ratio 2 is the ratio of Fe to $(\text{FeO}_x + \text{SiO}_2 + \text{CaO})$. The values that anticipate Claim 1 correspond to Run 19. Regarding Claim 9, the amount of SiO_2 content of the copper sulfide concentrate (column 18, line 39) with respect to the Fe removed into the slag ranges from 1.9-2.3%. Regarding Claim 10, the slag temperature ranges from 1200-1300° C (column 3, lines 11 and 12).

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Claim Rejections - 35 USC § 103

13. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa '963.

Hasegawa discloses the invention substantially as claimed. However, Hasegawa does not disclose the entire range as claimed in Claim 1 or the more narrow range in Claim 4. Regarding Claim 1, the disclosure of a composition in which the components and ranges meet (i.e., touch) or overlap those being claimed establishes prima facie case of obviousness. *Titanium Metals Corp. v. Banner*, 227 USPQ 773. Regarding Claim 4, in the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). MPEP § 2144.05.

14. Claims 5-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa.

Hasegawa discloses the invention substantially as claimed. However, Hasegawa does not disclose the entire range as claimed in Claim 5 or the more narrow range in Claim 10. Regarding Claim 5, the disclosure of a composition in which the components and ranges meet (i.e., touch) or overlap those being claimed establishes prima facie case of obviousness. *Titanium Metals Corp. v. Banner*, 227 USPQ 773. Regarding Claim 10, in the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists.

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In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). MPEP § 2144.05.

15. Claims 1, 3, and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Edwards '270.

Edwards discloses the invention substantially as claimed. However, Edwards discloses broader ranges than claimed in Claims 1 and 4. In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). MPEP § 2144.05.

16. Claims 5, 9, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Edwards.

Edwards discloses the invention substantially as claimed. However, Edwards discloses broader ranges than claimed in Claims 5 and 10. In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). MPEP § 2144.05.


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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tima M. McGuthry-Banks, whose telephone number is 703-308-1917. The examiner can normally be reached on 9:30-3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy V. King, can be reached on 703-308-1146. The fax numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist, whose telephone number is 703-308-0651.


Tima M. McGuthry-Banks
Examiner
Art Unit 1742

August 8, 2002